



A publication of Fairfax County, Virginia



## PERMIT APPLICATION GUIDELINE

# HIGH-PILED STORAGE

OF COMBUSTIBLE COMMODITIES IN EXCESS OF 12 FEET IN HEIGHT

### Office of the Fire Marshal

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**\*\* PERMIT REQUIRED \*\***

This publication outlines the *Virginia Statewide Fire Prevention Code* (i.e., Fire Prevention Code or SFPC) permit and documentation requirements related to high-piled combustible storage and associated storage areas located inside new and existing buildings within Fairfax County and the towns of Clifton, Herndon, and Vienna. This publication does not address outside storage and miscellaneous combustible storage (i.e., below 12 feet in height) located inside buildings.

\*\*\* PLEASE REVIEW THIS ENTIRE PUBLICATION BEFORE MAKING APPLICATION \*\*\*

Questions regarding the content of this publication should be directed to the Fire Inspections Branch at 703-246-4849 during regular office hours, Monday thru Friday, 8 a.m. to 4 p.m.

## OVERVIEW

The Fire Prevention Code defines "high-piled storage area" as the area within a building which is designated, intended, proposed, or actually used for high-piled combustible storage. High-piled combustible is the storage of combustible materials in closely packed piles or combustible materials on pallets, in racks, or on shelves where the top of the storage is greater than 12 feet in height. When required by the fire code official, high-piled combustible storage also includes certain high-hazard commodities, such as Group A plastics, rubber tires, flammable liquids, idle pallets, and similar commodities where the top of the storage is greater than 6 feet in height.

Required fire protection features for high-piled combustible storage are generally determined by the storage commodity type (i.e., combination of products, packing materials, and containers) as well as the height, quantity, and method of commodity storage. A key concept in the protection of buildings containing high-piled combustible storage is ensuring the level of fire protection provided is adequate for the commodity types and storage arrangements actually in place.

**PERMIT REQUIRED.** An operational permit (i.e., Fire Prevention Code Permit) is required to use a building or a portion thereof as a high-piled storage area exceeding 500 square feet. The primary focus of this permit requirement is to ensure the required level of protection and planning (e.g., fire protection systems, portable fire extinguishers, smoke and heat vents, fire department access, evacuation plan, etc.) is adequate, code compliant, and properly maintained for a particular high-piled storage area. A Fire Prevention Code Permit (FPCP) for high-piled combustible storage will only be issued after documentation requirements have been satisfied.

**HIGH-PILED STORAGE PLAN REQUIRED.** In order to satisfy the requirements for a high-piled combustible storage operational permit (i.e., FPCP), a high-piled combustible storage plan must be reviewed and approved by the Fire Marshal before the operational permit will be issued.

**FIVE STEP PROCESS.** The following steps form the procedural framework for completing the documentation submittal/retrieval, permit application, and inspection scheduling processes ...

- STEP 1 - Prepare Required Documentation
- STEP 2 - Submit Required Documentation
- STEP 3 - Retrieve Approved Documentation
- STEP 4 - Make Application for a Permit (FPCP)
- STEP 5 - Schedule a Fire Marshal Site Inspection.

## **STEP 1 - PREPARE REQUIRED DOCUMENTATION**

The following documentation requirements must be satisfied before a Fire Prevention Code Permit (FPCP) for high-piled combustible storage will be issued. Prior to making application for an FPCP, the high-piled combustible storage plan review application, plan review documents, and completed evacuation plan (for public accessible storage areas) must be submitted, reviewed, and approved by the Fire Marshal. Following approval, a copy of the approved high-piled combustible storage plan and plan review application shall be maintained on the premises in an approved location, readily available for inspection by the Fire Marshal.

**Plan Review Documents.** In accordance with Section 2301.3 of the Fire Prevention Code, at the time of building permit application for new structures designed to accommodate high-piled storage or when requesting a change of occupancy/use (storage hazard change), and at the time of application for a high-piled combustible storage permit, plans and specifications shall be submitted for review and approval. All plans, specifications, documents, or designs for high-piled combustible storage shall bear the name and address of the author and his/her occupation.

To avoid confusion with other construction documents associated with the building, approved documentation for high-piled combustible storage is known as the ***High-Piled Storage Plan***.

**Floor Plan Specifications.** Designers shall provide a **scaled** floor plan of the building showing locations and dimensions of all high-piled combustible storage areas and storage arrangements. Dimensional drawings are not acceptable. Scaled drawings shall be: **1/8 inch = 1 foot**

**Plan Review Application.** A high-piled combustible storage plan review application must be submitted with the high-piled combustible storage plan review documents. All applicable information in the application must be provided to process the plan review. The application may be obtained by calling the Revenue & Records Branch at 703-246-4803, or online at:

**[www.fairfaxcounty.gov/fr/prevention/fmpublications/billing\\_hpcs.pdf](http://www.fairfaxcounty.gov/fr/prevention/fmpublications/billing_hpcs.pdf)**

**Fire Evacuation Plan.** In accordance with Section 2301.4 of the Fire Prevention Code, an evacuation plan for public accessible areas and a separate set of plans indicating location and width of aisles, location of exits, exit access doors, exit signs, height of storage, and locations of hazardous materials shall be submitted at the time of permit application for review and approval. Following approval of the plans, a copy of the approved plans shall be maintained on the premises in an approved location. Mercantile shall comply with the following publication:

**[www.fairfaxcounty.gov/fr/prevention/fmpublications/fmevac/mercevac.pdf](http://www.fairfaxcounty.gov/fr/prevention/fmpublications/fmevac/mercevac.pdf)**

**Minimum Required Copies.** Three (3) copies of the high-piled combustible storage plan review application, plan review documents, and completed evacuation plan shall be included in the plan submittal. The minimum required contents for plan documents are outlined in this publication

**PLAN REVIEW APPLICATION INSTRUCTIONS**

The following information must be accurately provided on the plan review application:

**(1) – STORAGE AREA IDENTIFICATION****A. Are there multiple storage areas separated by a 1-hour fire protection rating?**

This question is based on defining the high-piled storage area. Section 2306.3.2 allows a storage area separated by a 1-hour fire barrier be considered a separate high-piled storage area for determining the requirements in Table 2306.2. If you answer YES, clearly show the 1-hour (or greater) fire barrier wall on the plans and fill out a separate application (items 1-7 only) for each area that meets this definition.

**B. Description/Name of high-piled storage area.**

This is the name of the high-piled storage area. Where item A is YES, this will help separate the multiple high-piled storage areas. These areas should be named on the plans.

**C. Aggregate Area:**

This is the total square footage of the high-piled storage area. When calculating high-piled storage area for shelf and solid-pile storage, the actual area used for storage (not including aisles) should be determined. When calculating high-piled storage area for rack storage, the aisle width required in NFPA 13 shall be included in the total area.

**D. Ceiling Height:**

Provide the minimum and maximum ceiling height in the high-piled storage area.

**E. High-Piled Storage Area Accessible to the Public?**

This is used to determine the options allowed in Table 2306.2. If YES, a separate evacuation plan required by SFPC 2301.4 shall be prepared and submitted with this plan.

**(2) – COMMODITY CLASSIFICATION**

**A. Description of combustible materials stored:** Provide a brief description of the commodities that are stored. If more space is needed, provided additional sheets.

**B. Commodity classification(s) per SFPC 2303:** SFPC 2303 defines each class of commodity. Provide the class of commodity that is to be stored.

**C. Use of flame-retarding modifiers to change the commodity classification?** SFPC 2303.1 states that the use of flame-retarding modifiers could change the commodity classification. Are you claiming to use this allowance to change the commodity classification?

**D. Does the physical form of the material change the commodity classification?** SFPC 2303.1 states that the change in physical form could change the commodity classification. Are you claiming to use this allowance to change the commodity classification?

**E. If yes to C or D, provide documentation validating related changes in commodity classification.** Provide documentation that supports the change in commodity classification. Documentation may include specifications, testing data, or other supporting documents.

- F. Specify commodity class limitations in accordance with SFPC 2304.** Please review SFPC 2304. The high-piled storage area is to comply with the highest commodity classification being claimed with exception. When SFPC 2304.2 applies, clearly show on the plans the locations of the higher commodity being used.
- G. Amount of Group A plastics are classified as high-hazard commodity.** This is a declaration that Group A plastics, if applicable, have been determined not to constitute a commodity classification of High-Hazard.

### **(3) – HAZARDOUS MATERIALS**

- A. Identify if the following hazardous materials are part of the proposed high-piled storage plan. Refer to the SFPC chapter indicated for material-specific storage limitations and/or requirements.** When these hazards exist in the high-piled storage areas, other chapters also apply to the storage of these materials.
- B. Other Hazardous Materials.** Identify what other hazardous materials are being stored.
- C. MSDS for Hazardous Materials Stored Included with Plan Submittal.** When hazardous materials are stored in the high-piled storage area, please provide copies of the MSDS paperwork.

### **(4) – FIRE PROTECTION / LIFE SAFETY REQUIREMENTS**

- A. Automatic Fire-Extinguishing System Provided.** If YES, provide on the plans the complete information as to the sprinkler system type, density, and current design criteria for specific commodities, pipe types, sizes and sprinkler head characteristics. Hydraulic nameplate information from the sprinkler riser must be included.
- B. Fire Detection System Provided.** If YES, provide the type of fire detection system installed.
- C. Fire Department Access Doors Provided.** If YES, provide a description of exterior door hardware. Access doors shall have hardware and cylinder key locks. Roll-up doors shall not be used as part of the required building access unless written approval is given by the Fire Marshal's Office. Additional fire department key boxes may be required. Plans shall show the location of required access doors.
- D. Smoke and Heat Removal Provided.** If YES, provide information on the type, location, and specifications of smoke and heat removal. Plans shall show the location of the smoke and heat removal systems.
- E. Draft Curtains Provided.** If YES, provide information on the type, location, and specifications of the draft curtains used. Plans shall show the location of the draft curtains.
- F. Number, Size, and Type of Fire Extinguishers Provided.** Provide the number, size, and type of fire extinguishers. The location of the fire extinguishers shall be shown on the plans.
- G. Provide additional information if a footnote in SFPC Table 2306.2 applies to this project.** If you are applying a footnote in SFPC Table 2306.2, indicate which footnote and why it is being applied.

**(5) – FIRE SPRINKLER SYSTEM**

- A. Fire Sprinkler System Provided.** Is a sprinkler system provided in the high-piled storage area? If YES, plans shall show the location of all fire sprinkler system shutoff valves including in-rack sprinkler shutoff valves.
- B. Type of System.** What type of sprinkler system covers the high-piled storage area? This is used to determine requirements of 2304.2.
- C. Sprinkler System Design Density and Area.** Provide the sprinkler system design density and area.
- D. In-Rack Sprinklers Provided.** Are there in-rack sprinklers provided? If YES, clearly show the location of in-rack sprinklers and their shutoff valves on the plans.
- E. ESFR Sprinkler Heads Provided.** Are Early-Suppression Fast Response heads installed? This is to be indicated on the plans.
- F. Sprinkler K-Factor.** What is the K-factor of the sprinkler heads used?
- G. Sprinkler Head Temperature.** What is the temperature rating of the sprinkler heads installed?
- H. Sprinkler Spacing in Square Footage.** What is the spacing on the sprinkler heads?

**NOTICE:** Detailed information requested in items 6 and 7 listed below shall be provided for each separate high-piled combustible storage arrangement or configuration where storage methods or storage design specifications are different. For example, if solid-pile storage, rack storage, and bin box storage is to be located in the same high-piled storage area, a separate copy of page four of the applications will be required for each separate arrangement or configuration. In addition, each separate arrangement or configuration shall be shown in the plan.

**(6) – STORAGE ARRANGEMENT / CONFIGURATION**

- A. High-Piled Storage Arrangement:** Indicate the type of high-piled storage arrangement. The plans should clearly show the location of each type of storage.
- B. Shelf Information:** If shelf storage is indicated in item A, provide this information. Shelf storage is defined in SFPC 2302. This information is used to determine if the dimensions meet the requirement to be defined as shelf storage.
- C. Rack Configurations:** If rack storage is indicated in item A, provide this information. This type of configuration is defined in NFPA 13. Plans shall indicate the number of tiers used.
- D. Pallet Information:** Where pallets are used, provide this information.
- E. Solid Pile Information:** If solid-pile storage is indicated in item A, provide this information. This indicates how the piles are being stored.
- F. Maximum Pile Dimension:** Refer to SFPC Table 2306.2.
- G. Maximum Pile Height:** Refer to SFPC Table 2306.2.
- H. Maximum Pile Volume:** Refer to SFPC Table 2306.2.

**(7) – AISLE WIDTH / STORAGE-RELATED DIMENSIONS**

- A. Minimum Required Aisle Width:** Provide the minimum aisle width required by SFPC 2306.9 or NFPA 13 design criteria, whichever one is more restrictive. Aisle widths shall be shown on the plans. When active restocking is in process, the aisle widths may be reduced to half of the required aisle width in accordance with SFPC 2305.4.
- B. Transverse Flue Space:** See SFPC 2308.3. The 25 feet indicated in the table references the maximum ceiling height. Transverse flue space configuration shall be detailed on the plans.
- C. Longitudinal Flue Space:** See SFPC 2308.3. The 25 feet indicated in the table references the maximum ceiling height. Longitudinal flue space configuration shall be detailed on the plans.
- D. Maximum Storage Height:** Provide the maximum storage height as required by the sprinkler system design. Per SFPC 2305.6, a visual method shall be provided to indicate the maximum storage height. See below for the specifications on this method. Plans shall also include the maximum allowable storage height.
- E. Clearance from Top of Storage to Sprinkler Heads:** Indicate the minimum clearance allowed between the sprinkler heads and top of storage.

**KEY BOX & SIGANGE DETAILS.** Locations and/or specifications for the following requirements shall be clearly shown on the high-piled combustible storage plan as specified below.

- A.** Fire Department Building Access Door Signage: *Locations and Specifications*
- B.** Fire Department Key Boxes: *Locations*
- C.** No Smoking Signage: *Locations and Specifications*
- D.** Storage Height Limitation Signage: *Locations and Specifications*

**Fire Department Building Access Door Signage.** In accordance with Section 401.9 of the Fire Prevention Code (as amended by Fairfax County), where fire department building access doors are required by SFPC Table 2306.2, signage shall be placed on the exterior side of all required access doors. Signs shall be constructed of durable materials, permanently installed, and readily visible. Letters shall be a minimum of 6 inches high with a minimum stroke width of 0.75 inch on a contrasting background. Signs shall read “Fire Department Access Door”

**Fire Department Key Boxes.** Approved fire department key boxes shall be installed on each side of a building required to have fire department building access doors in accordance with SFPC Table 2306.2. Each key box provided under this requirement shall contain three (3) labeled sets of keys used to unlock the fire department building access doors.

**Approved Key Boxes -** In accordance with Section 506.1 of the Fire Prevention Code, where access to or within a structure or an area is restricted because of secured openings, or where immediate access is necessary for life-saving or fire-fighting purposes, the fire code official is authorized to require a key box be installed in an approved location. The key box shall be of an approved type listed in accordance with UL 1037 and shall contain keys to gain necessary access, as required by the fire code official. Detailed information about approved key boxes and key box order forms is available online at: [www.fairfaxcounty.gov/fr/prevention/fmrapidentry.htm](http://www.fairfaxcounty.gov/fr/prevention/fmrapidentry.htm)

**Key Box Installation Requirements** - The key box inventory requirements of SFPC Section 506.2 (as amended by Fairfax County) are not intended to apply to fire department key boxes associated with high-piled combustible storage access, other than what is mentioned here. The fire department key box used for all other building entry requirements that contains other required keys may be used for the side on which it is installed. Here is what typically applies to key boxes provided for high-piled combustible storage fire department access doors:

- Key boxes must be installed 42 inches to 54 inches above finished grade.
- Key boxes must be visible and accessible to responding fire department personnel.
- A durable, clearly visible sign shall be placed next to the key box indicating "Fire Department Access Doors Only" - Letters shall be on a contrasting background.
- For new or renovated buildings, fire department key boxes must be installed prior to issuing the Fire Prevention Code Permit for high-piled combustible storage.

**No Smoking Signage.** No Smoking signs shall be provided. Sign specifications may be approved during the plan review phase and verified as compliant during a site inspection. Generally, signs should be clearly legible, visible from distances of approximately 25 feet, display lettering on a contrasting background, and proportion wording approximately as shown:



**Storage Height Limitation Signage.** In accordance with sections 401.9 and 2305.6 of the Fire Prevention Code (as amended by Fairfax County), a visual indication shall be provided to show the maximum storage height. The preferred method used for storage along walls shall be a line placed at the maximum storage height. The preferred method used for open area and aisles shall be a sign with the maximum storage height posted and the bottom of the sign installed at the maximum storage height. Additional methods used shall be approved by the Fire Marshal. Specifications for all maximum storage height signage shall be clearly illustrated in the plan.

## **STEP 2 - SUBMIT REQUIRED DOCUMENTATION**

**Plan Submittal Instructions.** Submit three (3) complete copies of the high-piled combustible storage plan review application, all plan review documents, and completed evacuation plan to the following address for review and approval:

Fairfax County Office of the Fire Marshal  
ATTN: Revenue & Records Branch (High-Piled Storage Plan)  
10700 Page Avenue  
Fairfax, VA 22030

**Plan Review Fees.** An hourly fee of \$128 will be charged for the review of the high-piled combustible storage plan review documentation. Hourly fees are charged in quarter hour increments (\$32), rounded to the next quarter hour. Do not include a payment with your plan submittal. Plan review fees shall be paid when plans are retrieved.

### **STEP 3 - RETRIEVE APPROVED DOCUMENTATION**

After the submitted documentation is reviewed and approved, arrangements should be made to retrieve customer copies of all approved documentation (i.e., high-piled storage plan). The Fire Marshal will retain one copy of each approved plan on file. Approved plans may only be retrieved at our office during regular lobby hours, 7:30 a.m. to 3:30 p.m., Monday through Friday. To find out the status of the plan review, call the 703-246-4803. ***Submitted documentation cannot be returned by mail.***

**Notice about Fire Marshal Approval.** In accordance with Section 107.8 of the Fire Prevention Code, plans approved by the fire official are approved with the intent that they comply in all respects to the Fire Prevention Code. Any omissions or errors on the plan review submittals (i.e., plan review application, high-piled storage plan, and evacuation plan) do not relieve the permit applicant of complying with all applicable requirements. Generally, application for a Fire Prevention Code Permit (FPCP) may be made when approved plans are retrieved.

### **STEP 4 – MAKE APPLICATION FOR A PERMIT (FPCP)**

In accordance with Section 2301.2 of the Fire Prevention Code (as amended by Fairfax County), a Fire Prevention Code Permit (FPCP) is required to use a building or a portion thereof as a high-piled storage area exceeding 500 square feet. Furthermore, in accordance with Section 108.2, application for an FPCP shall be made to the fire official in such form and detail as prescribed by the fire official, and applications for permits shall be accompanied by such plans as prescribed by the fire official. Therefore, an FPCP application for high-piled combustible storage must be accompanied by an approved copy of the high-piled storage plan, which will be returned when the FPCP is issued at the time of the fire marshal site inspection. The FPCP application is available online at:

**[www.fairfaxcounty.gov/fr/prevention/fmpublications/frd\\_069.pdf](http://www.fairfaxcounty.gov/fr/prevention/fmpublications/frd_069.pdf)**

**Permit Notice.** In accordance with Section 108.3.6 of the Fire Prevention Code, the issuance or granting of an operational permit shall not be construed to be a permit for, or an approval of, any violation of any of the provisions of this code or of any other ordinance of the jurisdiction. Permits presuming to give authority to violate or cancel the provisions of this code or other ordinances of the jurisdiction shall not be valid. The issuance of a permit based on other data shall not prevent the fire official from requiring the correction of errors in the provided documents and other data. Any addition to or alteration of approved documents shall be approved in advance by the fire official, as evidenced by the issuance of a new or amended permit.

### **STEP 5 - SCHEDULE A FIRE MARSHAL SITE INSPECTION**

In accordance with Section 108.2.2 of the Fire Prevention Code, before a new operational permit (i.e., Fire Prevention Code Permit) is approved, the fire official is authorized to inspect the receptacles, vehicles, buildings, devices, premises, storage spaces, or areas to be used to determine compliance with this code or any operational constraints required. A copy of the approved high-piled combustible storage plan and plan review application shall be maintained on the premises in an approved location, readily available for inspection by the Fire Marshal. Site inspections may be scheduled by calling 703-246-4849.

Fairfax County is committed to nondiscrimination on the basis of disability in all county programs, services and activities. Reasonable accommodations will be provided upon request. Materials such as this publication may be available in alternate formats. To request reasonable ADA accommodations or materials in alternative formats, call the Office of the Fire Marshal at 703-246-4803 (TTY: 711 or 1-800-828-1120) or write us at the following address: 10700 Page Avenue, Fairfax, VA 22030